

**Electronic Data Interchange  
For  
Program Management Reporting**

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**Getting Started Handbook**

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# Introduction

The Department of Defense (DoD) and the federal government are rapidly migrating to an electronic commerce (EC) environment to exchange a complete range of business, management, and technical information. DoD is committed to the use of electronic commerce tools such as electronic data interchange (EDI) to improve the quality and timeliness of data exchange, establish consistent methods, streamline processes and procedures, and reduce costs while increasing the effectiveness of personnel and information.

The Naval Sea Systems Command (NAVSEA) and Naval Air Systems Command (NAVAIR) took the lead within DoD to use EDI for program management reporting beginning in 1992. To date, the Navy, Air Force, and Army have successfully implemented EDI for program management reporting demonstrating that EDI can be used to exchange program management data in a cost-effective, timely, accurate, auditable, and secure manner.

This handbook is a collection of information, resources, knowledge gained, and lessons learned from the first programs to implement EDI to help other program offices implement EDI for program management reporting in the most efficient, cost-effective manner.

## About This Handbook

This handbook is designed to help government personnel plan and implement EDI for program management reporting. It focuses on the following contract deliverables related to program management:

- Cost Performance Reports, formats 1 through 5;
- Cost/Schedule Status Reports;
- Contract Funds Status Reports;
- Planning and Scheduling Reports;
- Contractor Cost Data Reports (four formats).

This handbook is designed for program managers, executives, and others who are responsible for making the decision to use electronic based systems to exchange program management data with industry. It is also designed for analysts, management information systems personnel, end users of application systems, and others who select or use the tools needed to integrate electronic commerce into their day-to-day processes and procedures.

# What is EC and EDI?

## Electronic Commerce

Electronic commerce is all the digital methods used to exchange the variety of data needed to conduct business. Although the term *commerce* may bring to mind the exchange of data related to ordering and paying for items, the intent is to cover the broad spectrum of all types of data exchange in a paperless environment.

EC includes such tools and methods as:

- EDI;
- E-mail including X.400 and X.435 exchange protocols;
- Internet, intranets, and extranets;
- Bulletin board services (BBS);
- On-line data access and query tools which may be used in a contractor integrated technical information services (CITIS) environment;
- Workflow and forms software;
- Groupware;
- Imaging and optical character recognition (OCR);
- Multi-media such as sound, graphics, video, and animation;
- Computer integrated manufacturing (CIM) and computer-aided design (CAD) tools and software.

## Electronic Data Interchange

Electronic data interchange is a collection of public standard message formats and a data element dictionary that allows trading partners to exchange data in a simple way using any electronic messaging service. Trading partners are all the entities involved in an exchange such as a contractor and their customer such as a government agency or service.

These standard message formats provide an application neutral format for the direct computer to computer exchange of information. These standards are developed through a consensus process across a wide spectrum of industries. The U.S. national standard for EDI is the American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12. The international standard is the United Nations Electronic Data Interchange for Administration, Commerce, and Transport (UN/EDIFACT).

The focus of EDI is on *structured* business documents that can be exchanged between trading partners. These structured business documents include deliverables such as cost performance reports, ship notices, report of test results, and material safety data sheets that are typically part of the contract data requirements list (CDRL). They can also encompass many of the procurement, transportation, logistics, and finance data that are exchanged between trading partners.

## Why EDI?

The goal of EDI is to provide a standard format and data element dictionary to exchange data in an electronic environment. EDI solves the problem of sharing data between disparate operating systems, applications, and computers using a simple neutral format. In the program management environment, this allows a program office to select commercial off the shelf tools and processes to exchange data in an electronic environment without having to spend scarce program funds on contract unique data format and delivery requirements.

EDI is designed to:

- Eliminate any manual data entry into one or more software applications for analysis and reporting which dramatically reduces errors, data entry costs, and time delays;
- Improve data consistency because the format and data element dictionary provide a standard set of parameters for all contracts while accommodating contract unique data content;
- Eliminate proprietary software formats, interfaces, and programming effort because the standard format is application neutral;
- Provide the means for all contractors to use a standard format for all their government customers eliminating contract specific data format and data delivery costs;
- Provide program managers with a common set of commercial tools and processes they can rely on and that are transparent to them.

## EDI Basics

### Transaction Sets

In the EDI environment, the electronic documents exchanged are referred to as transaction sets. They are assigned a name and a number for reference in the ANSI ASC X12 EDI environment. They are also assigned a version and release reference number.

The standards are updated on a periodic basis. For example, version release 004010 is dated December 1997. Generally, the version and releases are upwardly compatible. It is important to know which version and release of the standards are being used to make sure everyone is working from the same document.

The transaction sets describe the order and format of the data to be exchanged. They contain what are called *segments*, which are similar to records in a database, and *data elements*, which are similar to fields in a record, to describe this standard format. They also use *qualifiers* to describe amounts, quantities, dates, and percentages. These qualifiers come before a value, date, or percentage to describe what the item represents; for example, actual costs, an early start date, or percentage complete.

The transaction sets define the *structure* of the data. The standard format makes it easy to program computer applications to talk directly with each other without any human interpretation of the information being exchanged.

This handbook focuses on the following three transaction sets:

- **Contractor Cost Data Reporting (196)** for Contractor Cost Data Report (CCDR) DD Forms 1921, 1921-1, 1921-2, and 1921-3.
- **Project Schedule Reporting (806)** for planning and scheduling data.
- **Project Cost Reporting (839)** for Cost Performance Report (CPR) formats 1 through 5, Cost/Schedule Status Reports (C/SSRs), and Contract Funds Status Reports (CFSRs).

Two other transaction sets may also be used in the program management environment:

- **Text Message (864).** This transaction set is used to let a contractor know that the program office has accepted the data report. It can also be used to notify the contractor of any data content problems.
- **Functional Acknowledgment (997).** This transaction set is used to let a contractor know that an EDI message has been received. This receipt notice verifies that the customer received the information and that it passed a basic EDI syntax test.

## Implementation Conventions

To use these X12 transaction sets in a particular industry, an implementation convention (IC) is also needed. These ICs spell out exactly how a transaction set is used and narrows down the information required for a specific report format.

For example, for CPRs, it provides guidelines for the number of characters allowed for a work breakdown structure element code and description. It specifies which qualifiers can be used for reporting amount values such as cumulative to date actual, budget, and work complete.

The ICs are important for the people who need to build application interfaces among the various application systems used to exchange EDI messages. The ICs supply the details needed to describe record and field layouts and field sizes as well as to establish which version and release is being used.

The ICs can be used for compliance checking to ensure that a contractor is sending the required information in the right format. Various commercial off the shelf software vendors also use these ICs to provide utilities to convert data into and out of the EDI application neutral format.

Federal approved ICs are available for the 196, 806, and 839 transaction sets. These are available to download from the Secretariat for Federal EDI World Wide Web (WWW) site. The 839 transaction set has two ICs. The 839C addresses the CPR and C/SSR formats; the 839F addresses the CFSR format. The most recent Data Item Descriptions (DIDs) for CPRs, C/SSRs, and CFSRs have been incorporated into these 839 ICs.

## **Standards Committees**

Two government standards committees control and maintain the government ICs. The DoD EDI Standards Management Committee (DoD EDISMC) functions at the DoD level. The Federal EDI Standards Management Coordinating Committee (FESMCC) operates at the federal level.

These committees present a single face to industry, ensure compliance to a standard set of procedures, and are continually working to migrate various paper formats and functional areas to EDI. This single government approach to EDI allows a contractor that does business with any federal government agency to use the same electronic documents and formats for all of their government customers. This represents a significant cost savings to both parties because agency specific and contract unique formats and requirements are eliminated.

These standards committees also have various functional working groups to address EDI needs within the government. For example, the DoD EDISMC includes four functional working groups: Procurement, Transportation, Finance, and Logistics. The joint DoD and federal Logistics Functional Working Group addresses issues related to program management.

The National Institute of Standards and Technology (NIST) functions as the EDI secretariat at the federal level and provides a registry of all federal approved ICs which are available via the WWW.

## DoD and Federal Policy

Numerous DoD and federal policy memorandums and executive orders have been issued since 1988 related to electronic commerce and electronic data interchange. Selected DoD policy memos have been issued since 1991 related specifically to electronic commerce in the program management and program office environment. The more recent policy memorandums are noted below.

In a memorandum dated 25 January 1995, the Under Secretary of Defense for Acquisition and Technology directed that all military services begin implementing EDI for program cost and schedule reporting. In a memorandum dated 18 January 1996, the Under Secretary of Defense for Acquisition and Technology also directed the use of EDI for the Contractor Cost Data Reports (CCDRs).

A 2 July 1997 memorandum from the Deputy Secretary of Defense established the policy for the transition to a digital environment for acquisition programs. This memorandum set a corporate goal of using digital operations as the method of choice for all acquisition management and life cycle support information with the majority of these operations based on digital methods by 2002. A 15 July 1997 memorandum from the Under Secretary of Defense for Acquisition and Technology provides guidance for this transition. This 15 July 1997 memorandum established the Integrated Program Management Initiative Executive Steering Group (IPMI ESG) as the focal point for this transition.

At the foundation of these memos and executive orders is the Federal Information Processing Standard (FIPS) 161 which became effective September, 1991. It states that whenever a government agency wants to exchange data electronically with their suppliers or contractors, they must use the ANSI ASC X12 or UN/EDIFACT industry standards for EDI.

Various electronic commerce related policy memos, executive orders, and the latest edition of the FIPS 161 is available via the WWW.

## Information Exchange Process

### The EDI Pieces

To make EDI work, the following hardware, software, and technical pieces need be in place:

- **Computer hardware.** The hardware may be a PC, minicomputer, or mainframe system.



- **Application systems.** These systems include all the various program management software and analysis tools used to generate and accept the data.
- **EDI import or export utility.** This provides the means to take various application data and convert it to the EDI standard format or to take the EDI standard format data and convert it into a format an application can read. Various commercial off the shelf vendors can provide these utilities, some can be tailored to homegrown application systems or CITIS based environments.
- **Electronic connection.** This is the means to transport the data electronically such as a phone line and modem to establish a direct link, Internet, or other network connection. Electronic connections are generally preferred over diskettes, tapes, or CD-ROM; however, a secure environment may dictate otherwise. There are generally two methods of data transport: formal and informal.

## Formal EDI Exchange

The formal method is the older, more traditional way to exchange data using a closed or proprietary data exchange environment instead of an open standards based environment such as the Internet. This formal environment typically includes EDI translation software and value added networks (VANs).

The EDI translation software provides the means to communicate with the outside world, perform syntax or standards compliance checks, and manage all the data exchanges with various trading partners. The VANs are private third party data networks that supply electronic mailboxes and connections for the translation software and move the data from one location to another in a controlled environment.

The benefits to the formal method are:

- **EDI format syntax checks.** To ensure the data is in the right format and is using the correct qualifiers, the translation software performs a syntax check on the data and adds the outer addressing envelopes around the data. It may also perform mapping functions to translate data coming out of or going into an application to meet the EDI standard format requirements.
- **Receipt notices.** A receipt notice resembles a return receipt in the mail with a few extra features. It verifies that a customer received a message intact and that a deliverable requirement has been met. The 997 Functional Acknowledgment transaction set provides this.

- **Audit trails.** The formal EDI environment provides the means to trace a message throughout its journey from one point to another. In addition to providing a means of re-creating a transmission in the event of a problem, this audit trail verifies message integrity; for example, it confirms that the data were not altered or intercepted during transmission.
- **Access controls.** Passwords and other features in the EDI translation software and VAN connections help ensure that only authorized people have access to the information. This is important when transmitting highly proprietary information typical of program management data.
- **Backups.** All EDI messages are archived in the event it is necessary to re-create a transmission. Backups can be a key factor if a contract dispute arises between a contractor and the government.

On the down side, the formal method tends to be:

- **More costly.** The private VANs generally charge by the character and can be expensive. And unless EDI is used enterprise-wide, it can be costly to implement for one functional area.
- **Harder to implement.** The formal structure demands more of the internal application systems, procedures, and processes. It assumes all trading partners have assimilated formal EDI practices into their normal business environment for a broad range of functional areas and application systems. It can appear to be too complex, difficult to implement, and hard to use. A seamless integration into an application environment will demand more time and effort.

The following figure and steps illustrate this formal data exchange process:

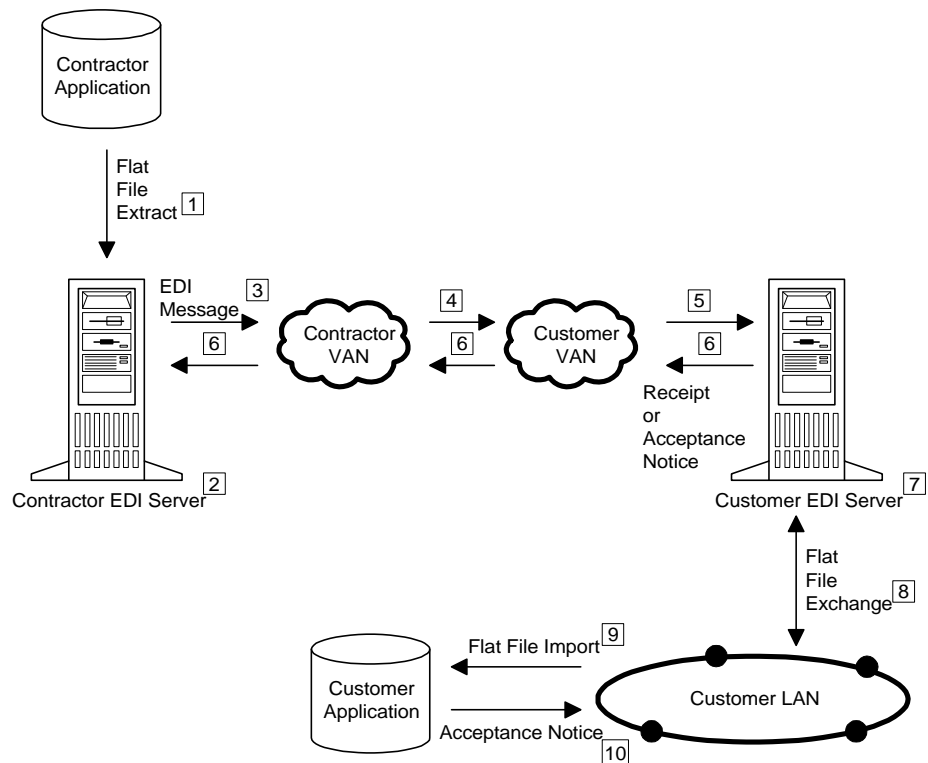


Figure 1. The Formal Data Exchange Process

1. The contractor extracts program management data from an internal application system. This export or extract routine typically produces a flat text file that can be in an EDI ready format or can interface with EDI translation software. An EDI ready format is a flat file that follows the EDI syntax and format rules but does not include the outer addressing envelopes that the EDI translation software provides.
2. The contractor runs the application export file through the EDI translation software which performs a syntax check and adds the outer envelope data.
3. Using the EDI software, the contractor sends the EDI message to a VAN mailbox for delivery to the address noted in the outer envelopes of the EDI message.
4. The sending party's VAN delivers the message to the receiving party's VAN. VANs can exchange messages with each other; the sender and receiver do not have to use the same VAN or translation software.

5. The receiving EDI server pulls the message down from the VAN mailbox.
6. The receiving EDI server sends a functional acknowledgment (receipt notice) back to the contractor to acknowledge receipt of the message. The contractor's EDI software uses this information for management and audit reporting. The receiving EDI server also makes a backup copy of the message.
7. The receiving EDI server "unwraps" the EDI message and creates an application flat file.
8. This application flat file is delivered to the end user. It can move across phone lines, wide area networks, or local area networks (LANs).
9. The end user reads the flat file into the receiving software application.
10. The end user may elect to create and send an e-mail message or an acceptance notice EDI text message to notify the contractor that the program office has accepted the data report or to notify the contractor of any problems with the data content.

## Informal EDI Exchange

The informal method incorporates open system or Internet based standards and Internet browsers as the means to exchange data. EDI translation software may or may not be used depending on the operating environment; the translation software can provide important functions such as EDI syntax checks and EDI message management services. Value added networks are typically not used, although many now operate over the Internet. Direct connections may be used, however, these can be subject to proprietary connection limitations. The purpose for using Internet browser software is that it provides a common user interface regardless of the operating environment.

The benefits to the informal method are:

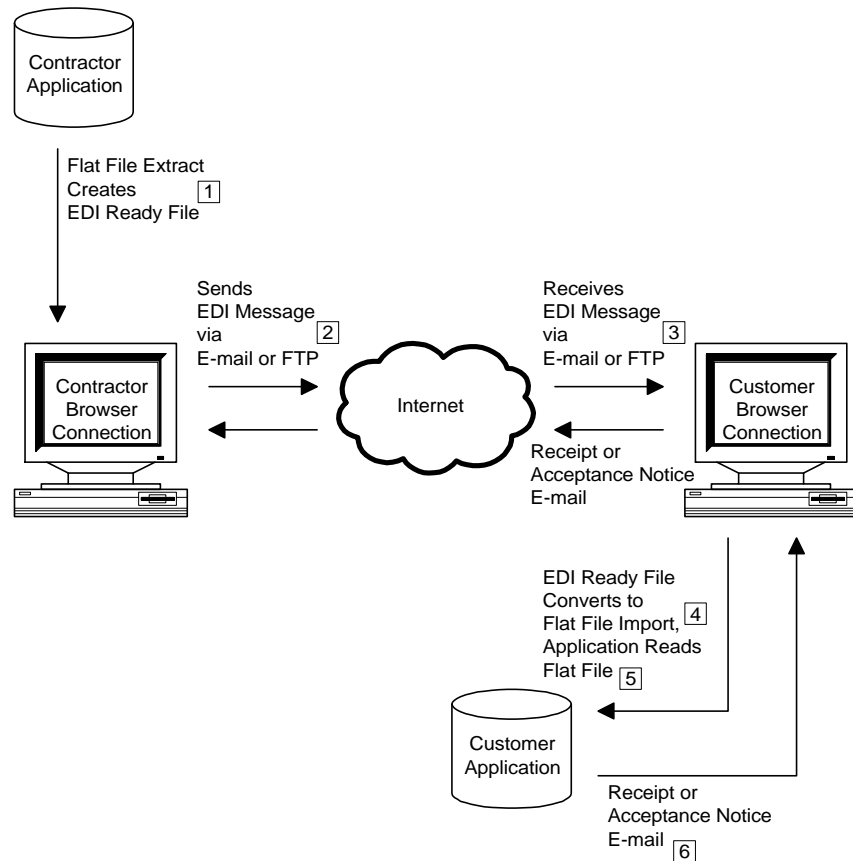
- **Uses established connections.** The informal method uses existing Internet based open system connections using e-mail or file transfer protocol (FTP) to exchange the data.
- **Easy to implement.** Because it uses established connections and Internet browser software, the process of making the data transmission connection is very simple. Computer system firewalls and passwords can be used to control access to the data. Encryption and digital signature software included with the high end browsers such as Explorer and Navigator can be easily implemented to authenticate the data.

- **Cost is low or negligible.** Because it uses the Internet as the transport mechanism, the cost of transmission is low. The cost of additional software and other services such as the VAN are also eliminated.

On the down side, the informal method requires:

- **More discipline.** The formal EDI transmission process includes a number of automatic safety features, checks, and audits to ensure the data arrives and arrives intact without any tampering. It includes automatic receipt notices and backup mechanisms. It may be necessary to establish similar audit and control features in the informal environment to ensure a message was received intact. Some type of backup system may also be required.
- **Security.** Computer system firewalls and related access controls such as passwords and smart cards are required to protect systems, applications, and data from unauthorized access; access controls ensure only the right people can get to the data. Encryption and digital signatures where appropriate are highly recommended for EDI exchanges that include business sensitive information to authenticate the data. Security methods and processes must be established and strictly enforced to ensure data integrity and confidentiality.
- **Means to acknowledge receipt.** In the formal EDI environment, the 997 Functional Acknowledgment transaction set is used to acknowledge receipt of a message. This is an important feature particularly when CDRs are involved. It may be necessary to establish some type of acknowledgment function to notify the sender that their data was received.

The following figure and steps illustrate this informal data exchange process:



*Figure 2. The Informal Data Exchange Process*

1. The contractor extracts program management data from an internal application system. This export or extract routine typically produces a flat text file in an EDI ready format that can interface with EDI translation software if desired or sent as is. Again, an EDI ready format is a flat file that follows the EDI syntax and format rules but does not include the outer addressing envelopes that the EDI translation software provides.
2. Using an Internet browser, the contractor sends the EDI message to their customer via e-mail or delivers the EDI message to an FTP site. Standard encryption and digital signatures can be added to the message before it is sent.
3. The receiving party opens the e-mail message or accesses the FTP site to retrieve the EDI message. Standard encryption software can be used to decrypt the data and to verify any digital signatures; system firewalls and passwords can control access to the data.

4. The EDI message is converted into a flat file that the receiving application can read.
5. The end user reads the flat file into the receiving software application.
6. The end user may elect to send an e-mail message as an acceptance notice to notify the contractor that the program office has accepted the data report or to notify the contractor of any problems with the data content.

A variation on this informal method of data delivery is to set up a secure Internet based site as a CITIS type of on-line environment with a user option to download an EDI ready file that can be imported into the customer's application system(s) for further analysis and reporting.

## About EDI Servers

In the formal EDI environment, dedicated EDI servers are used to handle and control the high volume of EDI traffic. Many large corporations establish large central or regional servers to handle all EDI exchanges with their customers whether commercial or government based. The federal government also has a number of large EDI servers and gateways. The main government EDI server used in the program management environment has been the DLA Automatic Addressing System Center (DAASC). DAASC is a huge EDI server system designed to handle large volumes of EDI traffic complete with redundant systems and a 24 hour help line.

The EDI servers are generally large UNIX systems or workstations that provide a variety of services. The EDI translation software resides on these servers and does such behind the scenes work as pulling data from the VAN mailboxes on a periodic basis, translating the EDI message into a file that an application can use, making an archive copy of the message, sending back a functional acknowledgment, and passing the flat file to the end users. The EDI servers can play a very sophisticated role in exchanging a variety of data with a number of different internal application systems; it essentially functions as the main conduit for data exchange between application systems and trading partners.

Selected servers can also provide automatic distribution of an EDI message to a specific list of recipients. For example, the contractor would send out one copy a cost performance report message to the EDI server. The EDI server would then automatically send the single message to various parties much like a "CC" on an e-mail message works. One copy could be sent to a program office, another sent to the military service headquarters, and another sent to an audit agency such as DCMC.

Using a central government EDI server also makes it easy for large corporations to establish a single conduit for all their EDI traffic for all their government customers. This allows them to set corporate policy for all their divisions using a single method of data exchange with their government customers.

## Issues and Concerns

### Points of Confusion

Typically, there are two main point of confusion surrounding electronic commerce and EDI. They are:

#### 1. On-line access versus data delivery.

On-line access can take many forms. Typical examples include a contractor allowing a government customer to access their internal application to view selected cost and schedule data or a CITIS type of environment where an secure Internet or intranet site has been established to allow a customer to access various reports or graphs that can be viewed on-line with a browser. This provides the customer with immediate access to the data. Typically, this a *view only* mode; the data cannot be manipulated or downloaded into another application. Depending on contract requirements, this may be sufficient for the customer. The only drawback is if the customer must learn contractor unique applications to access the data – Internet based browser approaches provide a more universal and open system user interface.

EDI plays a role when the data needs to be extracted or downloaded for the purpose of reading the data into one or more application systems. For users who want to go beyond viewing pages on-line, EDI supplies the means to collect and merge data for use in other applications regardless of their source. EDI's application neutral standard format allows data to be extracted and read into a variety of application systems for further analysis and reporting.

On-line access and EDI could also be combined in a CITIS environment. For example, a secure Internet site could be established to allow the customer to view the reports and graphs. In the event the customer wanted to extract the data for further analysis, a download option could also be included on the WWW page. This download function would use the EDI format to provide the data to the customer in a standard format. This approach also embraces the future of standards on the Internet including XML or extensible markup language, which is a method for extending and annotating HTML (hypertext markup language). A draft proposal under consideration with World Wide Web Consortium (W3C) provides the guidelines to combine XML with EDI to provide a standard framework to



describe data in a standard format; look for these Internet and EDI environments to continue to merge over time.

## **2. Transport mechanism and standard data format.**

Many times the EDI standards get confused with the method of data transport. They are two separate entities. The standard formats can be exchanged over any electronic messaging service.

In the past, the EDI standards have been married to the formal, traditional method of data transport that dictated that EDI translation software must be used and a value added network or proprietary direct connection were required to do EDI. This formal traditional approach can be costly and hard to implement, typically relegating EDI to large corporations who can afford it.

Today, EDI data is moving over many types of electronic messaging services including the Internet. The Internet open system based standards make it very easy to implement EDI at minimal cost. The Internet has leveled the playing field for small and medium sized companies. It has also made it more cost effective for a program office to implement EDI because of the variety of commercial off the shelf tools that are available to exchange EDI messages between application systems.

## **Things to Consider**

There are a number of things to consider in a digital program office environment. The goal is to streamline processes, make things easier to use and access, get rid of the paper, and make better use of data for timely management control and decision making. Things to consider in the transition process to a digital environment include the following:

- **Security.** The security precautions taken to protect data exchanged in an electronic environment should be at least as strong as those employed for the exchange of paper, but should not be so stringent that they add unnecessary cost or burden to the trading partners.

In a formal EDI environment, the normal operating procedure level of data protection is usually sufficient. The EDI software and VAN connections usually require some type of password to control access to the data and transmission process. The value added networks can track the movement of a message because it operates in a controlled environment. Studies have shown that business sensitive data is much more secure going through a formal EDI message exchange than when paper is exchanged. In the event a more secure environment is desired, the X12 outer envelopes can be used to provide encryption.

In an informal EDI environment, computer system firewalls, access controls, and commercial off the shelf encryption and digital signatures can be used. Computer system firewalls and access controls can be employed to protect the system, application, and data from unauthorized users and to ensure confidentiality of the data. Encryption and digital signatures can be included in standard browser software used to exchange electronic messages. Generally, the same encryption and digital signature software or utilities must be the same at both ends, but new products are now being offered that do not have this limitation providing a more open approach.

- **Digital signature.** Digital signature is typically tied to encryption methods when moving an electronic message over the Internet. The outer envelopes in a formal EDI environment can also include a Personal Identification Number (PIN), a form of digital signature. Digital signatures provide authentication that an electronic message has been sent by an authorized person. This can provide a measure of control and replace paper signatures typically used today to certify delivery of program management data. The goal is to eliminate current paper processes and replace them with electronic equivalents.
- **Receipt notice.** In a formal EDI environment, the 997 Functional Acknowledgment transaction set is used to verify that an EDI message has been received. In an informal environment, it may be necessary to establish some type of electronic based procedure to verify that an electronic data delivery has occurred. Keeping a backup copy of the receipt notice should also be considered. This information can be important in the event of a contract dispute.
- **Acceptance notice.** Acceptance of the data is a separate process from a simple receipt notice. It may be necessary to establish some type of electronic acceptance notice that goes back to the contractor to let them know the program office has accepted the data or there are problems with the data and needs to be resent. This can be as simple as an e-mail notice. If there are problems with the data, the e-mail could include an error report attachment that could help the contractor pinpoint data problems.
- **Data content.** The EDI standards are only concerned with providing a standard format to exchange the data. The content of the data is outside the scope of the EDI standards. If there are certain data content rules that must be followed, provide all trading partners with those requirements. Data content requirements could range from using specific reporting structure element codes to verifying data calculations. Various commercial off the shelf software analysis tools can also be used to verify the data content before it is submitted for electronic delivery.

- **Get rid of the paper.** The objective of a digital environment is to remove the paper processes. In the event both paper and electronic copies of program management data are being submitted, there needs to be an established plan to stop the paper once the electronic method has been verified that it provides the same data. Running a parallel process makes sense when a new method is being implemented. However, once the new method has been proved and the data results are the same, the paper process must stop. It is costly and inefficient to produce a paper and electronic copy.
- **Use a single method.** The goal is to use a single approach to electronic data formats and delivery. Using standard formats provides consistency and a reliable means to import and export data regardless of the application used or in the event the underlying applications change. Using a single approach to data delivery is also important. The goal is avoid using different delivery methods for the various types of data and use a single method such as e-mail, FTP exchange, or formal EDI data exchange. Mixing and matching methods depending on the type of data makes it harder for the user to follow all the different steps they need to get the right data. Keep it simple.
- **Use open systems, standards based methods.** The purpose of open systems and standards is to allow all types of applications, computers, and computing environments to work together. Proprietary systems and proprietary solutions lock users into a closed environment that limits options and mandates specific approaches. *Technology changes too quickly to mandate how a digital environment will work.* Open systems and standards change and grow with the rapid advances in technology. Using open standards provides the ability to take continual advantage of the changes in the underlying technology.

## Implementation Steps

The purpose of these implementation steps is to provide a place for a program office to start. It is generally taken from the point of view of migrating an existing contract or follow on work to an existing contract to a digital environment. If starting out with a new contract, the implementation can be much easier. In either event, implementation only begins once the decision has been made to move to a standards based digital environment.

### Step 1. Management Endorsement

This is a fundamental step required to ensure success. A top level commitment must be made to use standards based electronic systems instead of paper, proprietary formats, and contract unique requirements.

Education about electronic commerce, EDI, and why a standards based electronic environment is important is a key component. Program office

personnel need to understand government policy, future direction, the bigger picture surrounding a digital program environment, and how it benefits them.

Cost and benefit facts and figures can also help to illustrate how EDI can improve efficiency and reduce costs. Examples of how EDI means better data and better use of data is also key. Contractors may also appreciate knowing the program office's facts and figures. The goal is to create a win-win environment.

- *Tip: Contact other program offices who have implemented EDI for program management for facts, figures, and metrics they used or benefits they have realized as a starting point. Funds required to get started can be very minimal because established formal and informal methods of data transport are in place; also, various commercial off the shelf tools are available to help a program office get started quickly.*

## Step 2. The Contractor

The contractor is the next important step. They must be a willing trading partner. A program office may need to address any related contractual issues or considerations that the contractor may bring up and should be prepared with negotiation points and be able to present a general idea of how they want their digital program office environment to work.

Ideally, the program office has an idea of the contractor's EDI capability. Generally, most contractors are EDI capable; they have been doing EDI for a number of years in other functional areas such as procurement and finance. Sometimes it is simply a matter of bringing the program management people together with the company's EDI resources to get EDI moving forward quickly. They may already have the EDI software in place and only need to add other documents to the exchange process.

- *Tip: Have the contractor's program management people check to see if they have any corporate EDI resources available to help them. Typically, EDI is handled at the corporate level; corporate policy, processes and procedures are already in place, and EDI experts are available for help. Selected contractors have also started single process initiatives (SPI) to migrate all their cost and schedule reporting to the EDI standards. Again, have the contractor's program management people check to see if there are any corporate policy or initiatives in place or in process.*

The contractors are expected to supply the resources and personnel needed to implement EDI. The program office should furnish a functional and technical point of contact to answer any questions the contractor may have. Contractors may need some general "handholding" if they are implementing EDI for program management reporting for the first time. The program

office should be prepared to furnish some level of support to the contractors during the start up and testing phase.

If the contractor is not EDI capable, the contractor will need to create an implementation plan and set up policies and procedures to migrate to an EDI environment. This process may have an impact on the program office's EDI implementation plan. Various commercial off the shelf tools are available to contractors to help them get up to speed quickly and to extract data out of their systems using the EDI standard formats.

### Step 3. The EDI Team

The EDI team keeps the process moving forward and addresses any policy, contractual, functional, or technical issues that may arise. This is not a full time effort. The main objective is to get things started and to make sure things move forward to a production environment. Once the production environment is established, this team is no longer required.

Members of the team are the key people that work with the program office to create the EDI implementation plan and make sure all the resources are available. With the program office, they set the goals, time frames, and any operational criteria. The EDI team should also provide progress reports to the program office and other interested parties on a periodic basis (for example, monthly). These progress reports demonstrate that milestones are met and cost savings are realized.

Ideally, the EDI team should include the following.

- Representative from the program office;
  - Representative from the contractor;
  - Representative from any audit organization (for example, Defense Contract Management Command, or DCMC);
  - Functional representative from the program office who knows and uses the application system that receives the data;
  - Technical representative for the program office or military service to handle communication, programming, or other related issues.
- *Tip: Look for technical or functional representatives that may have gained experience from using EDI for another contract or in another functional area. Experienced resources help make the change process that much easier and smoother.*

### Step 4. The Implementation Plan

Like any other project, implementing EDI requires a plan to determine what needs to be done, who is doing it, when it is going to be done, and what kind

of resources are required. The plan should also include some type of measurement criteria, such as milestones, to demonstrate that progress is being made.

Attachment A in this handbook provides a sample Plan of Action and Milestones (POA&M) document and schedule that can be used as a basis for the plan. This sample plan and schedule can be tailored to meet the needs of a specific program office. Providing a copy to the contractor for comment, revision, and agreement to proceed is recommended.

## Step 5. Groundwork

Consider the following items before any data is exchanged:

- **Provide a copy of applicable implementation conventions (ICs) to everyone involved.** This is optional if commercial off the shelf tools are used; however, verifying that the vendor is following the federal approved implementation conventions is recommended. The IC verifies the version and release of the standard and provides information about the structure and parameters of the data exchange. All federal approved ICs are available via the WWW.
  - **Identify an data content requirements.** The contractor must be aware of any specific data content requirements. These generally are data requirements that are dictated by the receiving application or program office data specifics that are outside the scope of the IC.
  - **Identify the applications that will be used and any interface requirements.** Typically, the data coming out of an application system must be mapped into an EDI ready format. Conversely, an EDI ready file must be mapped into a format that an application can read to import the data. This mapping is a one time effort that may have already been done depending on the application systems used. Various commercial off the shelf tools can provide utilities to do this export or import mapping. For government end users using formal EDI transmission methods, the map to provide the data in a format an application can use are available at DoD EDI server sites such as the DAASC system.
  - **Resolve contractual, administrative, or security issues.** *Contractual issues* are contract specific. CDRLs may need to be modified; for example, the contractor may wish to negotiate the cost of changing the deliverable methods. Each program office must address such issues with each contractor.
- *For additional helpful hints and tips, check with other program offices to see what they have done in this area. The contractor selected may already be doing EDI with another program office or agency and may be willing to discuss a number of negotiation points and considerations*

*required to do EDI. A contractor may also have initiated a single process initiative to move all their program management reporting to EDI.*

The CDRL item for specifying EDI can be simple; state that the ANSI ASC X12 standards for EDI will be used to exchange contract deliverables with a specific notation for the related transaction set. The CDRL can also designate formats and tailor the content of the data as usual.

- *Example CDRL wording: The [specify type] data should be provided to the government using electronic data interchange (EDI) in accordance with American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12 uniform standards. The transaction set(s) [provide number(s) and titles(s)] will be used to exchange this data. Conform to the data format requirements specified in the federal approved implementation convention for these transaction sets, version and release (004010) of the X12 standards.*

*Administrative issues* can be addressed with a simple verbal or written agreement noting administrative details related to the exchange of data such as responsibilities, points of contact, transaction sets used, ICs used, version and release of the standards used, and specific contracts.

For program offices using a formal EDI exchange approach, the federal central contractor registry system can assist with a number of administrative details. This central registry system provides information that the DoD EDI servers can use to manage the EDI traffic coming through. Contractors use the 838 Trading Partner Profile transaction set to register or update their information.

*Security issues* should be addressed. A written document can help identify how and where the data are moving, who is responsible for what, what systems are used, what controls are used to manage the data such as encryption or passwords, who has access to what, and what constitutes receipt and acceptance. This written document should generally include details specific to authentication, confidentiality, data integrity, and nonrepudiation.

- **Train personnel.** Consider providing executive overview briefings or technical training for the end users so all parties understand how the digital environment works.
- **Set up a getting started meeting.** The purpose of this meeting is to work out the details in the implementation plan with the people involved in the EDI process.

- **Establish operating criteria.** All parameters for exchanging data must be set and agreed upon before the testing process begins. It should establish the method of data exchange, whether formal or informal. It should include a detailed definition of what constitutes receipt and acceptance of data. Consider using automated, electronic methods for receipt and acceptance.

These criteria should include target time frames (*n* minutes or hours) to move the data from one point to another, security, procedures for problem resolution, points of contact, and, if applicable, a distribution list to identify all parties that need to receive the data. Backup and audit requirements should also be part of these criteria.

## Step 6. The Connections

This step includes determining the method of data transfer and setting up all the required connections among the various hardware systems and applications software that physically move the data from one place to another.

The program office and contractor must first determine if they will be using a formal or informal method of data exchange. The activities involved to establish the necessary connections will vary depending on the method of transport. In a formal EDI environment, a program office may elect to enlist the services of an established federal EDI server familiar with the program management transaction sets such as the DAASC system for help in setting up network connections and determining the method of data delivery to the program office and other interested parties. An informal EDI environment is typically much easier to implement as established Internet based connections provide the means to transport the data; however, data access controls, encryption, and digital signatures may need to be added to the connection process at both ends.

On the contractor's side, they need to have completed the process of extracting the data out of their application system into an EDI ready file. This EDI ready file must comply with the EDI standards syntax, comply with the applicable federal implementation convention, and follow any contract specific data content requirements and checks.

On the program office's side, they need to have the capability to import an EDI ready file into their application system and perform any data content checks as needed to verify the content of the data is acceptable.

## Step 7. Testing Phase

The testing phase includes at least three different procedures as follows:



- **Basic (end-to-end) connection test.** This test verifies that the contractors can send a simple EDI messages using their transport method of choice. Any security, receipt, and acceptance procedures should also be tested. Once everyone is satisfied with the results, the system is ready for the next step.
- **Transaction set content test.** This test verifies that the given transaction set can carry the data required by the program office. Sending old data previously sent by paper or other means to determine whether or not the program office is getting the same data through EDI is a good way to test this capability. This test should be run at least two or three times to verify that the system is working properly, resolve any problems, and highlight any potential pitfalls.

This test demonstrates that all the pieces are in place. It helps determine if anything needs to be fixed, if operating parameters need to change, and if all business requirements are being met with the IC. It also points out any outdated paper specific policies and procedures that may need to change to reflect the migration to an electronic environment.

- **Parallel process.** During this test, the system moves to real time. The contractor sends the data using the old method such as paper or diskette and via EDI for an agreed upon period, usually at least three months. The implementation plan should include the target date the program office plans to begin and end the parallel process. The trading partners may want to notify each other in writing that the old process will stop on a given date. From that date forward, they will use only the EDI process.

## Step 8. Production Mode

During this step, all the planning and implementation efforts come together for completion. The program office and contractor have gained confidence that the process works. Along the way, they have learned many new lessons about communications, the way EDI works, and the real benefits of EDI including measurable facts and figures to show savings in time and money.

EDI can also be a catalyst for other changes that improve business processes and procedures because it requires thought about what data is really needed and what processes are important to manage a contract in the most cost-effective and efficient manner. Moving to an electronic environment at one end can cause a ripple effect that results in fundamental improvements in how people work and how a program office functions.

## **ATTACHMENT A**

### **IMPLEMENTING EDI FOR PROGRAM MANAGEMENT PLAN OF ACTION AND MILESTONES**

#### **OVERVIEW**

The Department of Defense (DoD) and the federal government are rapidly migrating to an electronic commerce environment to exchange a complete range of business, management, and technical information. DoD is committed to the use of electronic commerce tools such as electronic data interchange (EDI) to improve the quality and timeliness of program management data, establish consistent methods, streamline processes and procedures, and reduce costs while increasing the effectiveness of personnel and information.

#### **POLICY**

In a memorandum dated 25 January 1995, the Under Secretary of Defense for Acquisition and Technology directed that all military services begin implementing EDI for program cost and schedule reporting. In a memorandum dated 18 January 1996, the Under Secretary of Defense for Acquisition and Technology also directed the use of EDI for the Contractor Cost Data Reports (CCDRs).

In a memorandum dated 2 July 1997, the Deputy Secretary of Defense established the policy for the transition to a digital environment for acquisition programs. This memorandum set a corporate goal of using digital operations as the method of choice for all acquisition management and life cycle support information with the majority of these operations based on digital methods by 2002. In a memorandum dated 15 July 1997, the Under Secretary of Defense for Acquisition and Technology provided guidance for this transition to the digital environment for acquisition programs.

#### **OBJECTIVE**

This plan of action describes the steps that the [Service] will take to implement EDI to migrate from the current paper based methods of accepting program management data to electronic based methods in accordance with federal and DoD policy and guidelines.

At all times, the American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12 standards for EDI will be used to exchange data. The goal is to create an electronic exchange of program management information among the contractor and [Service] program management systems in a way that is transparent to the end user of the data.

EDI eliminates the time and effort needed to enter data manually and increases the timeliness and accuracy of the data. With the use of the ANSI ASC X12 standards for EDI, the process of submitting program management data can be greatly improved and simplified so that personnel can do their jobs without being consumed by tasks that do not add value. The EDI standards provide a consistent way to receive all types of program management data in an application neutral format across all programs and services, thus eliminating contract unique data format and delivery costs. While the EDI standards provide a consistent data format, they also allow a program office to tailor the content of the data as described in contract deliverable requirements.

#### **SCOPE**

This plan focuses on implementing [Service] EDI for program management reporting using these three ANSI ASC X12 transaction sets:

- Contractor Cost Data Reporting (196) for Contractor Cost Data Report (CCDR) data;
- Project Schedule Reporting (806) for planning and scheduling data;
- Project Cost Reporting (839) for Cost Performance Report (CPR) formats 1 through 5, Cost/Schedule Status Reports (C/SSRs), and Contract Funds Status Reports (CFSRs).

The contractor(s) will use the data requirements specified in the federal approved implementation conventions (ICs) available from the Secretariat for Federal EDI World Wide Web (WWW) site to submit the transaction sets. The selected contractor(s) will use **[data transmission environment description]** to submit their data.

## **APPROACH**

EDI will be implemented for an ongoing or new contract selected by the **[Service]**. The duration of the testing phase will be approximately three months and will be run parallel to the existing paper based process. After the test phase is completed and all parties are satisfied with the accuracy and reliability of the EDI process, plans will be made to eliminate the paper based requirements.

A team composed of representatives from **[Selected Service PM, Contractor]** will be established. This team will be responsible for performing or coordinating the tasks necessary to implement EDI through the testing phase.

The remainder of this section describes the activities or tasks that need to be completed. Implementation meetings will be scheduled on a periodic basis for the duration of the effort.

### **1. Provide Training**

Training will be conducted to explain how EDI will be used to exchange program management data. The intent is make sure the right people understand how the process works and what can be expected during the transition process to a digital environment. Training will be provided for specified government and contractor personnel. The training will fall into two categories depending on the type of personnel involved such as managers, support personnel, or end users.

- 1.1 Basic overview of EDI for managers, analysts, systems support, and end users includes the following:
  - a. What EDI is and how it works.
  - b. Why EDI is important.
  - c. DoD and federal policy.
  - d. What a digital environment means to them.
  - e. Getting started.
- 1.2 Functional (technical) training for analysts, systems support, and end users includes the following:
  - a. What is different in an electronic environment and how EDI works.
  - b. How to read the standards and convention guides.
  - c. Application integration with EDI including application mapping and formatting.
  - d. Data exchange options and methods.
  - e. Available commercial off the shelf tools.
  - f. What to expect and how electronic commerce and EDI effects processes and procedures.
  - g. Getting started.

### **2. Establish Trading Partners**

Trading partners are the contractors who will be exchanging program management data with the [Service]. The [Service] is looking for contractors who are willing to exchange data electronically as a means to improve the program management process.

- 2.1 Select Contractor. The goal is to select a contractor who is willing to make the transition to EDI with the [Service]. The program office must be committed to making the transition. The contractor may be selected after conducting a survey to find out who is willing and capable, or the program office may make the decision that EDI is a requirement for the contract.
- 2.2 Set Up Meeting. This initial meeting sets the stage for the exchange of data between the [Service] and the contractor. The participants will discuss responsibilities, required tasks, testing process, implementation conventions, goals, and time frames.
- 2.3 Implementation Support. Contractors are expected to provide the majority of implementation support to meet their requirements.

### 3. **Set Up and Test Data Exchange Connections**

Connections are all the hardware, software, and communications components needed to exchange data electronically. The basic data flow concept is as follows: (1) Contractor extracts program management data from its internal system and creates an EDI ready file. (2) Contractor sends the EDI ready file using the data transfer method of choice. (3) Customer retrieves the EDI file and processes it to create an application readable flat data file. (4) Recipient(s) import the flat file into the appropriate software application.

- 3.1 Determine method of data transmission (formal or informal).
- 3.2 Establish connections.
- 3.3 Testing.
  - a. Pass test transaction sets to verify connections.
  - b. Verify any applicable security and digital signature processes.
  - c. Set up receipt acknowledgment process.
  - d. Set up data acceptance process.
- 3.4 System connections complete and ready to transmit data.

### 4. **Analyze Data, System Integration and Work Flow**

The [Service] will analyze the data to verify that it is being transferred and captured correctly. The [Service] will analyze the system integration and work flow to verify the software interface process and identify any methods or procedures that inhibit the electronic exchange of information. The purpose is to eliminate any steps that are no longer required to reduce time needed to process data, increase consistency, and improve the reporting capabilities of the system, i.e., to provide correct information in a timely manner. The goal is to make the system comfortable for the end users and to ensure they have full confidence in the process and the system.

- 4.1 Software Interfaces. [Service] will develop or acquire commercial off the shelf tools to provide the interface between the EDI ready flat file and the software application used to analyze the program management data. [Service] will identify any problem areas that need to be modified for the interface to work in a production environment.
- 4.2 Streamlining Processes. These processes will determine specific activities as the test phase progresses. This process will be ongoing.

### 5. **Contract Requirements**

- 5.1 Existing Contracts. The [Service] will prepare any contract modifications required to implement EDI. As directed, contractor(s) will provide estimated costs for these contract modifications if required.

- 5.2 New Contracts. Contracting language will reflect DoD and federal electronic commerce policy.

**6. Conduct Testing and Apply Lessons Learned**

- 6.1 Determine intermediate milestones for test phase.
  - a. Participants and responsibilities.
  - b. Milestone schedule.
  - c. Expected results.
- 6.2 Conduct first-pass testing and confirm results.
- 6.3 Update processes and procedures, and fix any connection or software problems.
- 6.4 Run parallel paper and EDI process for agreed upon time frame.

**7. Implement Production System**

- 7.1 Test phase complete.
- 7.2 All connections final and complete.
- 7.3 Software interfaces complete.
- 7.4 Paper processes eliminated.
- 7.5 Expand to other contracts and contractors.

**LIMITS AND CONCERNS**

Data Security. DoD is appreciative of the business sensitivity associated with program management data and contractor trading partner concerns regarding the security and control mechanisms applied to these data in transitioning from paper to electronic data transmission. Security precautions taken to protect data and transmission in the EDI environment should be at least as strong as those employed for the exchange of paper, but should not be so stringent as to apply an unnecessary cost or burden to any of the trading partners. The [Service] may elect to develop and establish a security plan. The cognizant [Service] security authority should review this plan to ensure that the security responsibilities of both the government and contractor are clearly defined and that adequate physical and logical safeguards are included.

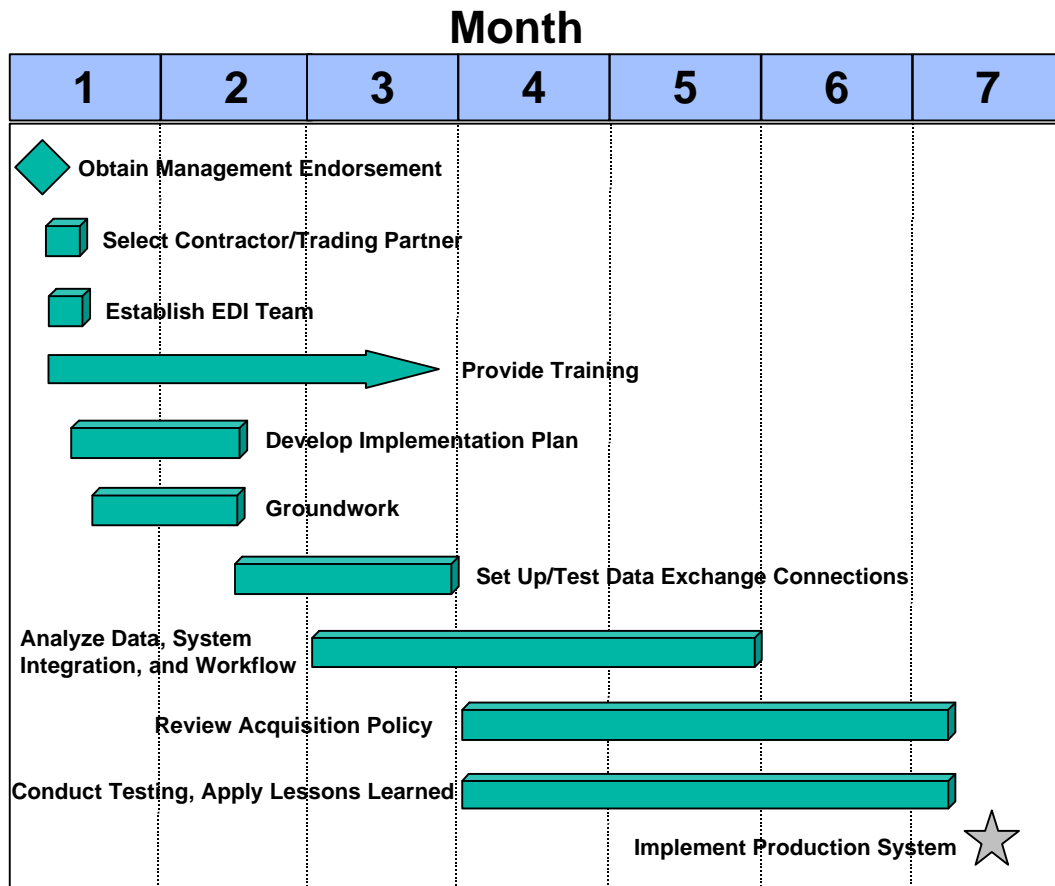
**PRODUCTS**

[List of expected products]

**POINTS OF CONTACT**

[Service] Focal Point(s)  
Program Office  
Service EC/EDI Program Office  
Defense Logistics Agency or Defense Contract Management Command

## SCHEDULE (SAMPLE)



## ATTACHMENT B

### GLOSSARY

<b>196</b>	Transaction set number for the Contractor Cost Data Reports. Used to exchange CCDR data.
<b>806</b>	Transaction set number for Project Schedule Reporting. Used to exchange network scheduling, resources, task lists, milestones, bar charts, or line of balance type of data.
<b>838</b>	Transaction set number for Trading Partner Profile. Used to exchange contractor information for the federal central contractor registration system.
<b>839</b>	Transaction set number for Project Cost Reporting. Used to exchange Cost Performance Report (CPR), Cost/Schedule Status Report (C/SSR), or Contract Funds Status Report (CFSR) data.
<b>864</b>	Transaction set number for a Text Message. Typically used to send an acceptance notice or to let the sending party know there were problems with the data content in a previous EDI message. Also see <i>Acceptance</i> .
<b>997</b>	Transaction set number for a Functional Acknowledgment. Used to send the electronic equivalent of a return receipt in the mail to notify a sending party an EDI message was received okay.
<b>Acceptance</b>	Method or procedure to notify the sender that the contents of an EDI message are okay and have been accepted by the receiver. Generally used to satisfy any contract deliverable requirements. Also see <i>Receipt</i> .
<b>ANSI</b>	American National Standards Institute.
<b>ANSI Standard</b>	A document published by ANSI that has been approved through the consensus process of public announcement and review.
<b>ASC X12</b>	The ANSI Accredited Standards Committee X12. It comprises industry members who create EDI standards for submission to ANSI for subsequent approval and dissemination.
<b>Authentication</b>	A mechanism that allows the receiver of an electronic transmission to verify the sender and the integrity of the content of the transmission through the use of an electronic key or algorithm shared by the trading partners. That algorithm is sometimes referred to as an electronic signature.

<b>Availability</b>	Means to ensure that systems work promptly and service is not denied to authorized users. Typically, the availability of a system and its data are protected through the use of contingency planning and data backup and recovery procedures. An example is archived data that is often used for backup and recovery purposes.
<b>Browser</b>	Internet application software used to access World Wide Web servers.
<b>CCDR</b>	Contractor Cost Data Reports, the DD 1921 series of four formats, for actual cost tracking, learning curve analysis, lot production details, and plant-wide statistics.
<b>CDRL</b>	Contract Deliverable Requirements List.
<b>CFSR</b>	Contract Funds Status Report. For reporting contract funding details, usually quarterly.
<b>CITIS</b>	Contractor Integrated Technical Information Services. A means to provide on-line access to program data to authorized parties.
<b>Compliance Checking</b>	A checking process that is used to ensure an EDI transmission complies with the ANSI ASC X12 or UN/EDIFACT syntax rules. EDI translation software typically does this compliance check when it sends or receives EDI messages.
<b>Confidentiality</b>	Means to protect data to prevent sensitive information from being disclosed to unauthorized recipients. Includes such methods as passwords or smart cards, use of a trusted third party, or cryptographic techniques such as the Data Encryption Standard.
<b>CPR</b>	Contract Performance Report. Series of five formats for monthly performance reporting.
<b>C/SSR</b>	Cost/Schedule Status Report. Series of two formats for simplified monthly performance reporting, generally for smaller contracts.
<b>DAASC</b>	DLA Automatic Addressing System Center.
<b>Data Elements</b>	Basic units of information to describe data in an EDI environment. Data elements are like fields in a record. A segment defines the order of the fields (data elements) in a record (segment). Data elements represent a singular fact. It may be a single character code or qualifier, literal descriptions, dates, or numeric values. Also see <i>Segment</i> .
<b>DCMC</b>	Defense Contract Management Command.



<b>DISA</b>	Data Interchange Standards Association. A nonprofit organization funded by ASC X12 members to serve as the Secretariat for ASC X12.
<b>DLA</b>	Defense Logistics Agency.
<b>DoD EDISMC</b>	Department of Defense Electronic Data Interchange Standards Management Committee. Committee responsible for setting policy at the DoD level for EC/EDI and approving ICs for use within the DoD. Includes functional working groups for Finance, Procurement, Transportation, and Logistics. Program management issues are worked through the joint DoD and federal Logistics Functional Working Group.
<b>EDI</b>	Electronic data interchange. The computer application to computer application exchange of machine readable and processable business information in a public standard format such as ANSI ASC X12 or UN/EDIFACT via any electronic messaging service.
<b>EDI Ready File</b>	Data extracted from an application in a flat text file that follows EDI syntax and format rules but lacks the outer envelope data that EDI translation software provides. It can be used to interface with EDI translation software in a formal EDI environment or sent as is in an informal EDI environment.
<b>EDI Server</b>	Computer system used as a central processor to handle EDI traffic and related processes and procedures. Includes EDI translation software, backup utilities, communication and file transport capabilities, application interface mapping, electronic copy distribution, and so forth.
<b>EDI Translation Software</b>	Software used to interface with application systems and EDI standards. Provides compliance checking, data mapping, communication utilities, EDI management reports, trading partner details, and more.
<b>Electronic Signature</b>	See <i>Authentication</i> .
<b>Extranet</b>	Two or more connected or shared Internets.
<b>FESMCC</b>	Federal EDI Standards Management Coordinating Committee. Responsible for EC/EDI issues at the federal level, including migrating from ASC X12 to UN/EDIFACT, Federal Acquisition Regulation changes, and updating policies and procedures to enable EDI. They also approve and maintain a repository (see <i>NIST</i> ) for all federal approved ICs.

<b>FIPS</b>	Federal Information Processing Standard. FIPS 161 relates specifically to EDI, stating that when a government agency asks for data to be sent electronically, they must use the ANSI ASC X12 or UN/EDIFACT standards.
<b>Firewall</b>	Method of implementing access controls based on contents of the data exchanged between two parties or devices on a network. Firewalls provide a single point of control for security on a network.
<b>Formal EDI Environment</b>	An EDI environment that uses the traditional method of data exchange using EDI translation software and value added networks.
<b>FTP</b>	File transfer protocol.
<b>Functional Acknowledgment</b>	An EDI message that is sent to a trading partner to let them know the EDI message they sent was received okay. Works as the electronic equivalent to a return receipt in the mail.
<b>Home Page</b>	Source page on the World Wide Web.
<b>HTML</b>	HyperText Markup Language. A standard set of codes used to define World Wide Web documents.
<b>Implementation Conventions (ICs)</b>	Defines how the ASC X12 standards are used by a specific industry group such as the Department of Defense.
<b>Informal EDI Environment</b>	An EDI environment that uses open systems, Internet based communication protocols and methods of data exchange.
<b>Integrity</b>	Methods or procedures to ensure that messages are intact and unchanged or are changed only in a specified and authorized manner. Includes methods or procedures such as a reasonableness check, imbedded references, message repetition acknowledgment, internal message verification, use of a trusted third party, or cryptographic techniques.
<b>Internet</b>	The name for a world-wide, TCP/IP based networked computing community with millions of users world wide that links government, business, research, industry, and education together.
<b>Intranet</b>	An internal Internet.
<b>ISA/IEA</b>	Interchange control segments that are used to identify a unique interchange being sent from one sender to one receiver. Part of the outer envelope that surrounds an EDI message. Also see <i>GS/GE</i> and <i>ST/SE</i> .

<b>GS/GE</b>	Functional group segments that are used to identify a specific functional group or set of documents. Part of the outer envelope that surrounds an EDI message. This functional group is inside the ISA/IEA interchange control segments. Also see <i>ISA/IEA</i> and <i>ST/SE</i> .
<b>Mapping</b>	The process of identifying how EDI standards data elements relate to application system data elements.
<b>NIST</b>	National Institute of Standards and Technology. They maintain a repository of all implementation conventions approved by the FESMCC.
<b>Nonrepudiation</b>	Methods or written procedures to ensure that one of the two parties to a data interchange cannot falsely deny involvement in a transaction due to proof that can be offered to a third party.
<b>POA&amp;M</b>	Plan of Action and Milestones. See Attachment A in this handbook for an example.
<b>Receipt</b>	Method or procedure to notify the sender that an EDI message was received okay. Usually, the functional acknowledgment transaction set fulfills this requirement. Also see <i>Acceptance</i> .
<b>Security</b>	Methods used to protect data or to ensure that only authorized users can access data.
<b>Segments</b>	Define the structure of the data elements in the EDI standards. Segments are like records in a database. They describe the order of the data and the fields (data elements) that make up the record (segment). Segments consist of an identifier, title, purpose, and list of data elements along with any syntax or semantic notes on how to use the data elements. Also see <i>Data Elements</i> .
<b>Smart Card</b>	A credit card sized plastic card with an embedded integrated circuit that holds information in an electronic form and controls who uses the information and how. Can be used to control access to a system or application or to handle digital cash transactions.
<b>SPI</b>	Single Process Initiative.
<b>ST/SE</b>	Transaction set header and trailer segments that are used to identify a specific transaction set. Part of the outer envelope that surrounds an EDI message. These segments surround the core of the message—this core is the business data that is exchanged between application systems in the standard EDI format. Also see <i>ISA/IEA</i> and <i>GS/GE</i> .

<b>Syntax</b>	The grammar or rules that define the structure of the EDI standards.
<b>TCP/IP</b>	Transmission Control Protocol/Internet Protocol.
<b>Trading Partner</b>	Generic term for the parties such as government agencies or contractors who exchange information among themselves using EDI.
<b>Translation</b>	The act of accepting documents in other than EDI standard formats and translating them to the EDI standards; or the act of taking EDI messages and translating them to a format that an application system can use.
<b>Transaction Set</b>	A document that unambiguously defines, in standard syntax, information about a specific business use in an EDI environment. Consists of a number, title, purpose and scope, and a list of segments that prescribe the order and other details need to exchange data electronically.
<b>UN/EDIFACT</b>	United Nations Electronic Data Interchange for Administration, Commerce, and Transport. International standard for EDI equivalent to the U.S. ANSI ASC X12 standards.
<b>VAN</b>	Value-added network. VANs are private third-party networks that provide electronic mailboxes, store and forward capabilities, and more, to move EDI messages from one trading partner to another in a secure environment.
<b>Version/Release</b>	Identifies the publication of the standard being used for the generation or the interpretation of data in an EDI standard format.
<b>WWW</b>	World Wide Web. Notation typically points to a specific location on the Internet to find information.
<b>XML</b>	eXtensible Markup Language. A simplified subset of the standard generalized markup language (SGML, ISO 8879) that provides a file format for representing data, a schema for describing data structure, and a mechanism for extending and annotating HTML with semantic information.